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EXAMINER

KIM, SANG K

ART UNIT

PAPER NUMBER

3654

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Please find below and/or attached an Office communication concerning this application or proceeding.



***Claim Objections***

Claims 1-4 and 6-22 are objected to because of the following informalities:

In claims 1 and 12, the phrase, "extending hook members of said at least one first coupling" should be --extending hook elements of said at least one first coupling--.

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

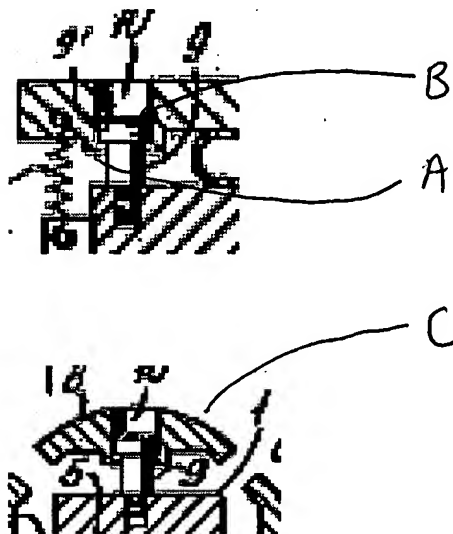
Claims 1-4 6, 8, 10-15, 17 and 19-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Gaudin, U.S. Patent No. 3414210.

With respect to claims 1 and 12, Gaudin '210 shows a generally cylindrical expansible mandrel comprising:

A generally cylindrical inner body (1) having a longitudinal axis and at least one first coupling (9); each said at least one first coupling being at least one pair of longitudinally extending hooking elements (see illustration below for hooking elements); at least two arcuate leaf elements (8) being movably coupled to said at least one first coupling (9) of said inner body (1) by means of at least one second coupling (using a base of bore 10), each said at least one second coupling (using a base of bore 10) being at least one pair of longitudinally extending hook elements complementary to and

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cooperating with said longitudinally extending hook [elements] of said at least one first coupling to limit radial movement of said at least two arcuate leaf elements relative to said generally cylindrical inner body (1) (see illustration below for complementary hooking elements between the first and second couplings), said at least two arcuate leaf elements (8) together substantially forming an outer profile of said generally cylindrical expansible shaft; and at least one thrusting element (14) being disposed between said leaf elements and said inner body to move said leaf elements radially outwards relative to said longitudinal axis to increase an outer diameter of said shaft when in a first configuration and move radially inwards relative to said longitudinal axis to decrease said outer diameter of said shaft when in second configuration, see figures 1-4.



A – the base of the bore 10 is used as the 2<sup>nd</sup> coupling.

B – the head portion of the guide pin is used as the 1<sup>st</sup> coupling. The base of the bore 10 and the head portion of the guide pin are complementary to each other and serves as hooks.

C – the arcuate leaf elements.

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With respect to claims 2-3 and 13-14, Gaudin '210 shows said leaf elements being resiliently biased radially inwards by means of a spring (11), see figure 1.

With respect to claims 4 and 15, Gaudin '210 shows the first and second couplings elements being complementary hooks by using a base of bore 10 to hook against a head portion of the guide pin 9, see figure 4.

With respect to claim 6, Gaudin '210 shows three-semi-circular leaf elements, see figures 1-4, and on column 2, lines 37-43.

With respect to claims 8, 10-11, 17 and 19-20, Gaudin '210 shows an air journal by using a drive shaft 2 that has an axial duct 5 for transferring air, and removably coupled with said inner body (1) by attaching/removing the guide pins (9), and including an intake opening (5) for permitting air to be supplied to said thrusting element (14) for moving said leaf elements (8) to said first configuration, see figure 1.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gaudin, U.S. Patent No. 3414210, in view of Matsuda et al., U.S. Patent No. 5480022.

With respect to claims 7 and 16, Gaudin '210 does not explicitly state that the outer surface of the leaf elements include a plurality of knurls for frictional engagement.

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Matsuda '022 teaches changing the surface configuration from smooth to knurl, see column 11, lines 1-7.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the surface of leaf into a plurality of knurls to increase friction as taught by Matsuda, in order to help engage and grip the material.

Claims 9 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gaudin, U.S. Patent No. 3414210

Gaudin '210 uses one axial duct 5 to intake and remove air.

Having separate ducts for inputting and removing air are notoriously old and well known for operating and manufacturing apparatus of all expansible mandrels. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use separate ducts to intake or remove air faster to increase a cycle time.

### ***Allowable Subject Matter***

Claims 21-22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Response to Arguments***

Claims 21-22 have been added.

Claim 5 has been canceled.

Applicant's arguments filed on 8/31/06 have been fully considered but they are not persuasive with respect to claims 1-4 and 6-20.

Applicant argues that Gaudin patent differs from the present invention because of the first and second coupling elements referring to extending hook elements 30, 32, 34, 36 with return springs 98 interpose there-in-between.

Examiner agrees with the applicant's statement above. However, claims 1 and 12 fail to recite the features argued by the applicant above. Only new claims 21 and 22 present added features directed to the position of the springs 98 in between the first and second couplings.

As stated above, the reference of Gaudin discloses the first and second couplings with complementary hooking elements to limit radial movement of the arcuate leaf elements, see illustration above.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

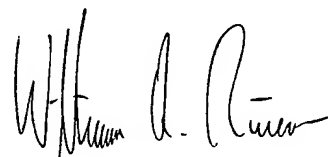
Any inquiry concerning this communication or earlier communications from the examiner should be directed to SANG KIM whose telephone number is 571-272-6947. The examiner can normally be reached Monday through Friday from 8:00 A.M. to 5:30 P.M. alternating Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kathy Matecki, can be reached on (571) 272-6951. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SK

10/6/06

A handwritten signature in black ink, appearing to read 'William A. Rivera', is written over a horizontal line.

**WILLIAM A. RIVERA  
PRIMARY EXAMINER**